

Office Action Summary

Application No.

10/736,900

Applicant(s)

TANI ET AL.

Examiner

Jason J. Boeckmann

Art Unit

3752

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 August 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 1-15 and 21-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 February 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>12/17/2003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Species IV in the reply filed on 8/30/2007 is acknowledged.

Claims 1-15 and 23 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 8/30/2007.

It is noted that independent claim 1 does not read on species VII associated with figures 18-21, because the injection bore plate of figures 18-21 does not include a step formed on the surface thereof. The specification indicates member 164, of figure 19, being the injection bore plate, and member 163 being a third plate (page 28, 2nd paragraph). Claim 1 clearly states that the injection bore plate has a step formed on the surface thereof (lines 9-15). However, the injection bore plate (164) of figures 18-21 does not include a step formed on its surface.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 16, 17 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Holzgrefe et al. (6,050,507).

Holzgreffe et al. shows a fuel injection device comprising: a valve body (1) having an inner wall (3) in which a fuel passage is formed, the inner wall being provided with a valve seat (29); a valve member (5) having a valve (7) coming in contact with the valve seat, the valve member being operative to close the fuel passage when the valve is seated on the valve seat and to open the fuel passage when the valve leaves the valve seat; and an injection bore member (23) mounted on an end of the valve body downstream the valve seat, the injection bore member being provided in a vicinity of a radial center thereof with a plurality of injection bores (42) and with a guide passage including a step (41 and 40) for causing fuel from the fuel passage to flow in at longitudinal opposite ends thereof and to flow along the step toward a center thereof to which inlets of the injection bores are opened.

Regarding claim 17, the guide passage has a reducing area portion (45) whose area is gradually smaller toward the center thereof and an enlarging area portion (46) which is connected to an end of the reducing area portion on a side of the center thereof and whose area is gradually larger toward the center thereof.

Regarding claim 19, the fuel injector further comprising: a guide member (16) disposed between the end of the valve body and the injection bore member for guiding the fuel from the fuel passage (3) toward the longitudinal opposite ends of the guide passage.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holzgrefe et al. (6,050,507).

Regarding claim 18, Holzgrefe et al. shows all aspects of the applicant's invention as in the rejection of claim 16 above, but does not specifically disclose that the injection bore member comprises a plurality of plates stacked on top of each other.

However, it would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to make the injection bore member out of three different plates (35, 36 and 37), since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art. This modification would make the injection bore member easier to construct because each plate could be cut separate and the stacked rather than making the intricate cuts in one member.

Regarding claim 20, Holzgrefe et al. shows all aspects of the applicant's invention as in the rejection of claim 19 above, but does not specifically disclose that guide member is provided with more than one hole.

However, one of ordinary skill in the art would recognize that replacing one large through hole with a plurality of little through holes having a combined cross-sectional

Art Unit: 3752

area, which is less than that of the single through hole, would increase the velocity of flow through the guide member. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to replace the single through hole of the guide member 16 with a plurality of through holes having a combined cross-sectional area that is less than that of the single through hole, in order to increase the velocity of fuel flow there through as well as increase turbulence in the guide passage.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Dressler et al. (US 2003/0122000), Harata et al. (6,616,072) (6,405,946), and Mikkor (4,826,131) all show fuel injectors with similar injection bore plates than that of the present invention.

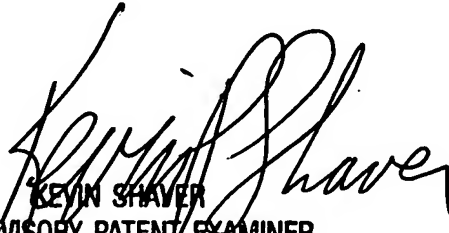
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason J. Boeckmann whose telephone number is (571) 272-2708. The examiner can normally be reached on 7:30 - 5:00 m-f, first Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin P. Shaver can be reached on (571) 272-4720. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3752

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JJB JJG 10/4/07


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